

AN

# ADDRESS

DELIVERED IN

## THE HOMŒOPATHIC MEDICAL COLLEGE OF PENNSYLVANIA,

AS

A PRELIMINARY TO THE COURSE OF 1849-50.

BY

A. E. SMALL, M. D.,

PROFESSOR OF PHYSIOLOGY AND PATHOLOGY.

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BOSTON:

OTIS CLAPP, SCHOOL STREET.

1849.



PHILADELPHIA, OCT. '8, 1849.

DEAR SIR:

The undersigned Members of the class in the Homœopathic Medical College of Pennsylvania, in behalf of their fellow-students, solicit for publication, a copy of your interesting and instructive preliminary Address.

Hoping you will accede to our request, we are with sentiments of esteem,

Very truly yours,

B. MUNSEY, of North Carolina,  
E. H. BACON, of Maine,  
D. S. PRATT, of Pennsylvania,  
I. L. MULFORD, of New Jersey,  
T. A. PEIRCE, of Maine.

A. E. Small, M. D., Prof. of Physiology, &c.

PHILADELPHIA, OCT. 10, 1849.

GENTLEMEN:

Your kind note soliciting a copy of my Preliminary for publication, has been received. I cheerfully accede to your request, and place a copy of the address at your disposal, regretting of course, that it is not more worthy of the consideration you have given it.

I am gentlemen, with great respect,

Very truly yours,

A. E. SMALL.

To Messrs. B. Munsey, E. H. Bacon, and others.



## ADDRESS.

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GENTLEMEN, — The rise and progress of the Homœopathic Medical College of Pennsylvania, is the result of that peculiar characteristic of our age, that aims at a universal extension of knowledge, to ameliorate the condition of mankind. Every day we are forcibly impressed with that vast range of inquiry, opening more and more to the multitude of men.

New discoveries in science cannot remain the hoarded treasures of a chosen few; they must find egress into the social world. For this purpose, institutions of learning are established, to serve as mediums of conveying truth through appropriate channels, to bless whole communities of men.

By an act of incorporation, the legislature of our state has established this institution for the purpose of elaborating the principles of a universal science, justly entitled to a high rank among the scientific developments of the present age.

The design of a medical education is to furnish the physician with unerring principles of truth to guide him in the selection of remedial means for the relief of the sick. It is a source of infinite satisfaction to the careful observer of nature, that all her phenomena have inscribed upon them, as it were by the hand of Omnipotence, certain fixed and unchangeable laws.

The most casual observer recognizes general laws of health, and uniform manifestations of disease, equally subject to the universal principle of causes and effects; and with the same propriety he may recognize a universal "law of cure," relatively fixed, and as palpably marked as the phenomena of health or disease.

It seemingly requires no confirmation that a knowledge of health, of disease, and a genuine "*law of cure*," constitutes the foundation for a successful professional career.

The idle dream of its being impossible to fix the practice of medicine upon a scientific basis, is one of those hoary opinions which the boldness of modern researches most happily refutes. Physicians can learn and understand the principles of their art, and be able to explain the laws and the processes they turn to account. They can, and should join intelligence to their



toil, in such a manner as to supersede that fearful foreboding of uncertainty, so common with those who attempt to administer for the relief of the sick.

It is to promote this end by the dissemination of truth in medicine, that so much care has been bestowed in the rearing of this school. An effort has been made to arrange a course of instruction in those branches of science connected with the study of medicine, with reference to the grand law of curing diseases. A knowledge of this law is confessedly of the first importance, and indispensably requisite to complete the education of the physician.

It is difficult to obtain any thing like a certain knowledge of the "*law of cure*," without a thorough acquaintance with those branches of science that unfold the structure and functions of the body, when in health, and also when afflicted with disease, and also with those that unfold the arcana of the *Materia Medica*, — its chemistry, therapeusia, pathogenesis, and dynamic qualities; together with the chemical and mechanical arts necessary to render the whole practically available.

The discovery of a general law of curing diseases was announced to the medical fraternity more than half a century since, by an eminently learned and distinguished physician of that day.

The truth of the discovery had thrown itself upon the central convictions of his soul. He asked of the profession a faithful and candid consideration of the matter; but he asked in vain. So much ignorance and superstition prevailed at the time, and so formidable were the prejudices so bold an announcement had to encounter, that but few, comparatively, exercised sufficient liberality to enter upon a competent investigation of its merits.

It was not to be expected, however, that a discovery savoring so strongly of a revolutionary tendency, would be looked upon with general favor, especially, by those who regarded themselves in a measure responsible for the medical literature of the age. It was, therefore, viewed with a jealous eye, and frowned upon as a rebellious innovation; but "*magna est veritas et prævalebit*."

The then youthful discovery attracted the attention of a few truth-loving men, eminently distinguished in the profession, who regardless of the frowns and sneers of the multitude, faithfully examined its claims, and patiently and honestly tested its truth



by abundant experience and observation. They searched the archives of medicine from the time the plastic hands of Hippocrates first formed it into a system, until the period of Hahnemann's announcement. They noted critically the well-defined instances of success in medical practice, during a period of more than two thousand years. They carefully ascertained the powers of the medicinal agencies employed. They found to their great surprise and admiration, that but one "law of cure" had been substantiated, and that seemingly more by accident than design, was standing out in letters of bold relief in every well-defined instance of cure, *like apples of gold in pictures of silver*, "*similia similibus curantur*."

It was thus that the great discovery of Hahnemann was in a measure confirmed. "Solitary and alone," he set the ball in motion, and its rolling movement will never cease until "the divine art of healing" becomes fully endowed with its high capabilities of good, — till it is wrested fairly and fully from its degraded and perverted condition, and from the almost un-mixed evil connected with it by the gross ignorance, sensuality, superstition, and cupidity of man.

What kind of a plight is the physician in when completely ignorant of this "law of cure," — suppose him to be thoroughly versed in anatomy, physiology, chemistry, and all the collateral branches of medicine, — and to what practical purpose can he turn them in curing diseases? It seemingly requires but little sagacity to perceive that he can only regard his scientific attainments a sort of useless training, to enable him to follow the nosological tables, according to the traditions of medicine, — that this is good for fever, this for gout; this for dysentery, this for cholera, &c. Any one may perceive that these traditions are things of memory, and not of science, and may be wielded as well by nurses and old women as by any class of persons. But let the truth be once understood, that there is a universal "law of cure," that can be practically applied in all curable diseases, and that the remedy employed sustains a specific relation to the disease, then it will be perceived that a practical knowledge of Anatomy, Physiology, and Pathology, and all the collateral branches, is of the utmost avail, in enabling the practitioner to diagnosticate the disease, determine the remedy in accordance with the true law of its relation to the same, and the best and most suitable method of preparing the remedy for administration.



The distinguishing feature of this school of medicine is its strict adherence to the homœopathic law of curing diseases, and the end contemplated in the course of scientific instruction here put forth, is to lead by induction into the true method of the "art of healing." In furtherance of the object, a course of instruction has been marked out, and the several branches distributed to different chairs, that each may be distinctly taught in such a manner as to form component parts of the whole, practically united and centering harmoniously in the legitimate uses of the profession.

The particular duty assigned me by the "Board of Managers" is to teach the sciences of Physiology and Pathology. While profoundly grateful for this mark of their confidence, and the distinguished honor conferred upon me, in awarding me a station so highly useful, I am aware of the responsibility attached to the same. The only return I can make is a pledge to serve the interests of the institution as faithfully as I can. Duty requires the most faithful attention on the part of both teacher and pupils; and in the indulgence of the hope of this being fulfilled, we can but anticipate that our mutual efforts will be crowned with a success that will richly reward us for the toil.

We have a wide field of research before us, which we may not be able to explore and fully comprehend, yet we may enter its domain, and proceed far enough to render treasures that otherwise might be hidden from our view, in a measure apprehensible to the senses. The depth of Infinite Wisdom, in the structure and functions of the living organism, we never can fathom. We can only render that in a measure apprehensible, that we cannot comprehend. Yet it is under the head of Physiology, and within its province as a science, that we must learn all that can be known of the functions, powers, and laws, of the healthy or normal condition of the human organism.

In a general point of view, the organism may be considered in health, when the solids and fluids of which it is composed are so happily and intimately blended together, as to be mutually dependent on each other for their origin and preservation, and we may add, with so perfect an adjustment or equilibrium, as to present nothing to the senses but absolute harmony or unity of functional movements.

Or, to bring the subject more home to ourselves, when to our own unreflecting consciousness, we exist as a living and ac-



tive unit, without pain or rivalry of action in any of the organs, to mar the delightful impression, or in any way to introduce the sensation of multitude, which must necessarily be the case, in any and every departure from the pure, unblemished standard of the healthy or normal condition.

It will readily be perceived that this kind of science is indispensable to the physician. He must possess an accurate knowledge of health, and the laws that regulate the same, that he may ever have an invariable standard, that by contrast, he can note the nature and existence of morbid phenomena. When once rendered familiar with the healthy operations of the body, it is easy to detect and note the characteristics of any departure from this condition.

This comes within the province of Pathology, which, as a branch of medicine, comprises a knowledge of diseases. It has been denominated diseased physiology, and is divided into general, and special. The former treats of disease in general, and the latter, the particular characteristics of each.

Physiology is also susceptible of a similar division. General physiology treats of the healthy operations of all the organs and viscera in common; and special, the healthy action of each.

In applying the "law of cure," it will be seen that physiology, pathology, and pathogenesis are in direct relationship. — Physiology discloses the standard condition, Pathology notes the departure produced by disease, and Pathogenesis indicates the remedy capable of acting upon the diseased organs. Thus by a combined knowledge of the three, an application of the law "*similia similibus curantur*" may be correctly made, and the disease may be overcome, by direct action of the remedy, without incurring the necessity of revulsive or derivative means.

All interpretations of the phenomena of disease must be founded upon the analogies of the healthy condition, and the pathologist is necessarily obliged to translate the phenomena into the language of physiology and to express them in terms denoting their similitude, or contrast, to healthy processes. "A sound pathology must be based on a sound physiology, for it is obviously necessary that their should be a standard of comparison, in regard to action, as well as structure. For only by observing the former can we understand the latter."

"The simplest illustration," says Dr. Shapter, "may be found in the common use of the words *hypertrophy* and *atrophy*



as expressing disease as more or less of the natural process of growth. Thus, when we speak of an enlarged heart, *hypertrophica*, in respect of its muscular substance, we are led directly to the cause; we know physiologically that a muscle grows in proportion to the stimulus of exercise, and in this instance it is inferred that the heart has done double work; and this accounts for its unnatural growth." It is similar when we speak of all organic difficulties, or functional disarrangements. We express the several diseases in a form which to the physiologist half intimates their origin, or at least suggests the direction in which their causes may be sought for.

Common observation teaches that every disease is marked by peculiar characteristic symptoms, which are noted as the effect of some cause, which, in a general point of view, we may be unable to determine, nevertheless the same observation teaches "that *causes choose their organs of manifestation* with as decided, and sometimes as exclusive, a preference, as governs the phenomena of inorganic chemical affinity. This we may prove by experiment. If we introduce various noxious agents into the stream of circulating blood, the several organs are alike exposed to their influence, but how differently are they affected. Inject *Opium*, and the brain suffers; *Arsenic*, and the stomach inflames; *Strychnia*, and the cord is acted upon; *Cantharidis*, and the kidneys are irritated; and all this so definitely, that the attraction evinced, is equal to a chemical demonstration of the agent employed. Dr. Bartoli remarks, "when the gums swell with mercury, or become blackened with lead, we have no more hesitation in naming the cause, than if we had the minerals precipitated in a test-tube. Equally precise is the elective affinity of morbid poisons, which indeed we recognize and distinguish only by their specific attractions. In the abdominal flooding of cholera; in the coughing, sneezing, and snivelling of influenza; in the eruptions of measles, and small-pox, and the other exanthematous fevers, we see the human body yielding uniform local phenomena to the excitement of specific causes, with just as much constancy as is found in the reactions of brute matter; and the evidence that various diseases have their specific ranges of affinity, is just as clear, as that demonstration of chemical attraction which we find in the precipitation of sulphate of baryta, or the combustion of phosphorus."

From this it would appear that a thorough knowledge of



general and special physiology serves two grand purposes of the physician. It enables him to measure, in some degree, the extent of morbid action, or the character of the changes produced by disease. It also enables him to determine the precise effects of drugs upon the healthy organism.

It may be said, in truth, that all diseases have a local tendency and a specific character peculiarly their own, always to be determined by some leading characteristic and the concomitant symptoms. It is precisely the same with drug diseases. They also have a local tendency, and when administered to persons in health, in doses sufficient to affect the vital economy, each produces its own characteristic effect, determined by contrasting the changes, or departure it occasions from the healthy or normal condition.

Therefore, by carefully noting the specific tendencies of disease, and the corresponding specific tendencies of drugs or medicines, the physician is enabled to select his counteracting agent on the account of its tendency being in the same direction as the disease he aims to cure. It is manifestly apparent that both the morbidical and the medicinal affections belong to pathological study. The character of the one is as much to be determined by the physiological or normal standard as the other.

We have much less to do with lesional anatomy and *post-mortem appearances* in determining the character of diseases, than with the living healthy organism. The perfection of our usefulness depends on our being able to make a correct discrimination of the laws of life, and *ante mortem phenomena*. What life is, no scientific demonstration will ever disclose. It is sufficient for the purposes of our investigation, to fully recognize its existence, in order that its light may continually shine on our pathway, as we endeavor to learn something of the economy and laws of its existence in the animal organism. There is, indeed, much that can be learned and must be learned, in order to establish any thing like a proper foundation for a successful professional course. It is obviously important to fix a right point from which to start, and then onward and still onward let the march be, to the end of our earthly toil; though above and below, on either side, and at every turn of life, is enduringly written "*Ars longa, vita brevis.*"

The field of labor we are about to enter is full of gems and precious stones, that must be sought for with the utmost care;



or, in other words, there is in the human organism, subject to the controlling power of human life, an epitome of the riches of the whole universe. It may be said, in truth, that whatever be the interest connected with material things, man is the centre of that interest; being a part of the vast world in which he lives, every thing becomes a part of him. The sciences of physiology and pathology, correctly understood, take into consideration the whole nature, condition, and relations of man, — relations between human organic life, and the animal, vegetable, and inorganic world. Man's relations not only impress an effect upon his body, but upon his mind and morals, to an extent worthy of being carefully noted.

There is attached to the study a responsibility with which we should be duly impressed. The human body, with all its faculties, functions, and powers, is but a transcript of the unseen mind which it interprets, a book of *natural scripture*, filled with sublime and practical truths, as redeeming in their character and as elevating in their tendency as those of direct revelation. Misery and wretchedness will ever attend a falsification of these truths, and a perversion of them will as surely exclude the redeeming effects of their benign attributes.

It is well, then, to exercise the greatest care in acquiring truth, for all truth is practical, — a right result is always to be referred to a correct principle of action. Every truth, when rendered practical, produces good results. This rule applied to the profession of medicine, will ever stimulate the student to shun doctrines that tend to a mal-practice. There is nothing to be dreaded more than false principles of action, for a mischievous result is always to be expected. But truth, and true principles, have a redeeming tendency, and they who acquire such for useful purposes, are but instruments of carrying out the grand design of Him who came for the redemption of mankind, — who caused "the lame to walk, the blind to see, the deaf to hear," who infused new life into the palsied limb, and "healed all manner of disease."

In all physiological research, it is proper for the mind to be elevated above the mere consideration of the outer world. For if we confine our attention alone to the body and its parts, without connecting therewith the spirit and the pervading life, the soul that presides over its destinies, we shall return from our task with but a scanty measure of success as a reward for the toil. It matters not how perfectly we learn the mechanism



of the human body, — how perfectly we proceed in the investigation of phenomena and effects and their proximate causes, even if we enter the very courts of the temple, and survey the beauties of its innermost sanctuary, unless we are able to deduce from such observation, something concerning the controlling powers and forces of life, and the essential attributes of humanity.

There is an old saying, and a true one, that “the greatest study of mankind is man.” By man, of course, is to be understood, all the faculties that centre in that divine form, said to be created in the image and likeness of God — soul, mind, and body. The whole comes within the range of our studies; and though we turn our attention first to the body, as resting upon the earth — as being composed of the elements of matter — we catch a glimpse through these emblems of higher powers and faculties. When fairly entered upon the study of physiology, we proceed, by induction, to conclusions that exalt the subject of our researches, as being the most dignified of all subjects for contemplation — recognized as an inhabitant of earth, with faculties soaring aloft, and connecting him with the immutable Author of his being. Like the ladder, seen by the patriarch, resting its foot upon the earth and extending its top to heaven, we behold the human form alike related to beings of earth, and those that dwell on high.

Our duties will lead us particularly to study man’s physical nature, and the laws of its constitutional being, when living and active, either in health or disease. In doing this we cannot rely upon the aid of chemistry and mechanics, to any great extent, for these are the enduring attributes of inorganic matter, and can only be applied to the animal kingdom when its organism is extinct, and its living soul gone. It has been presumed that a great step has been taken in physiology by the chemical analysis of the tissues and bones. It has been proved that the tissues are certain compound chemical bodies, azotised, or non-azotised. The former embracing *protein*, and its various modifications, gelatine, biline, &c., and the products of its metamorphosis, hæmatine, urea, and uric acid; and the latter, embracing the animal sugars, fats, lactic, and acetic acid, &c. The presence of gelatine, and phosphate of lime in bones, has been proved, and also the combination of oxygen, hydrogen, carbon, azote, and phosphorus, in these. But facts of this kind establish nothing concerning life, for when life is extinct, the tissues



and bones are the same as any other species of inorganic matter, and subject to the same laws, both chemical and mechanical. The highest attainments of chemistry and art can never form bone or tissue as it exists in the living subject.

Since there is no power in the material universe by which bone or any other portion of an animal can be formed, except by *the vital power and economy of the living animal system*, we are led to the conclusion that the organization and combination of the materials in the human frame are the result of a vital principle originally established by an all-wise Creator.

We shall be pardoned for refusing to follow in the beaten track of those worthy pioneers who have attempted an analysis of the living tissue. Though we are so much profited by their labors; for we may venture the assertion that not a thousandth part of the arcana, invested within the human form has ever been disclosed. The ancients denominated man, "*the microcosm*," or miniature world. The Platonic school withdrew their attention from general nature, and fixed it on man as an epitome of the whole, being in their estimation the central miniature embodiment of every thing in the universe.

Our special labor being to decipher the external lettering of this microcosm — the careful analysis of that which is of animal configuration — we shall prove the more successful, by constant and respectful reference to an assemblage of faculties, recognized by genuine science, yet beyond the sphere of its demonstration — faculties that declare themselves the offspring of an Infinite and intelligent source of life.

Science has not yet attained its most elevated point, neither is its boundary circumscribed to the experience of the present age. It is not necessary, however, that we should be able to define the limits of Science, in order to commence building her temple. We must lay its foundation on the earth where it must forever rest, and from the most obvious facts and phenomena we must commence our generalizations.

Not being endowed with that intuitive perception of causes that belongs to those who inhabit the brightest light, nearly related to him who dwells in essential truth and wisdom, we are not able to perceive all things in one complex, as at once beneath and within us; on the contrary we have to derive our knowledge through the aid of the senses, that furnish facts and materials to reason upon.

We are born in dense ignorance, and from this starting point,



we commence our journey in quest of truth. In process of time the organs of the senses are opened, "ways prepared, and images themselves are sublimated, until they become ideas, and at length reasons, which when connected into series, are brought under the reasoning power,—thus by slow degrees only, the judgment is developed, and the reason displayed."

Our only way of arriving at truth is by this process. Previous to being taught in any branch of science, we of course are ignorant of the systematic arrangement of facts, that signalizes its character.

Prior to our study of physiology, we of course are ignorant of what we have to learn. We look upon man as a living agent, endowed with innumerable faculties. We have no innate perception of what is contained within his body, *a priori*, before seeing the viscera thereof. Synthesis has no power to give assurance of a thing being true. It cannot assure us that the living body contains the liver, the mesentery, the kidneys, the pancreas, the spleen, and an infinite harmony of other organs; yet the power of analysis has demonstrated this and much more; and still there is room for farther advancement; the mind is still capable of being impressed through the senses, with new images, that may prove the germ of new ideas, to be brought under the inspection of the reasoning power.

"From facts, effects, and phenomena, made tangible to the senses," the web of our reasoning commences. From these, we mount to causes, and the causes of causes,—or in other words, we commence our inductions from what can be grasped by the senses, and proceed slowly from effects to causes, until the whole body is scanned and the subordinate arrangement of the active and vital organs are satisfactorily ascertained.

To become proficient in the science of human nature, is equivalent to being familiar with the whole range of sciences that belong to the material world. For, if it be true that man is the "soul of the world," he surely assumes in his person, and controls by the laws of his kingdom, all the quantities and powers peculiar to the lower orders of nature.

The human body contains the same elements of matter that enter into the composition of all material things, found in any of the kingdoms of nature, but subject to a higher order of laws. The same primordial elements unquestionably enter into all forms of matter, in each of the departments of nature, but are subject to a different order of laws in each.



Naturalists have distributed the objects, presented to us by external nature, to three kingdoms: the mineral, vegetable, and animal. They have found it difficult to clearly assign the limits, that separate these distinct classes of objects. This familiar division of nature, however, has been so long in vogue, that to some it might appear absurd to doubt its entire adaptation to the uses of science at the present day; since it is upon these distinctions obvious enough, on the whole, that the sciences of Anatomy and Physiology are founded,—the one relating to structure, or organization, and the other to vitality.

But when we begin at the mineral kingdom, and follow up the orders of nature, marking each by its distinct and palpable boundary, we shall first note carefully the laws that govern the entire domain of inorganic matter, both chemical and mechanical, and perceive that the mineral kingdom is unvarying in its character, and destined to exist in its dead and inorganic state.

When we proceed from the inorganic to a consideration of the lowest order of organic bodies, as exhibited in the vegetable kingdom, we find all the attributes of the mineral kingdom yielding subserviency to a vital principle, that moulds, forms, and organizes, and exercises entire control over the elements of matter, and endows them with organic life; and although chemistry may prove that matter possesses the same elements in the vegetable as in the mineral, yet no combination of these elements, in accordance with the laws of chemical affinity, can produce a *living* vegetable. A living principle, that bids chemistry and mechanics to yield obedience, governs and organizes the elements in accordance with its own peculiar economy; and, whatever is assumed from the mineral kingdom, is vegetablized and endowed with vegetable life.

When we proceed a step further, and consider the characteristics of the animal kingdom, we find another and higher order of life, subject to a different economy and a different order of laws. Here, again, we find the same elements of matter as in the lower departments,—controlled, however, by the laws of animal life. No chemistry or mechanism can so dispose of these elements, as to produce an animal; for such is the peculiar result of animal life, the creative medium furnished by the hand of Omnipotence; hence, every thing that enters into the structure of the animal kingdom, becomes animalized and ennobled with animal dignity.



Without doing violence to truth, or in any way obscuring the orders and limits of nature, as usually defined, we may still note a higher order of life, as discreetly above the animal as this is above the vegetable and mineral. I mean the *human kingdom*, the particular object of our consideration; for man is by no means to be degraded, by placing him at the head of the nobler animals; he is more than animal — he is human, and subject to the control of laws infinitely above those that govern the ordinary animal creation. It is true that his body is of animal configuration; all the powers and attributes of the animal, vegetable, and mineral world are found in his person, perfectly subservient to the essential and controlling principle of human life; so that, from the inmost principle of life to the outmost material existence, he is man, a species *sui generis*.

By recapitulation we perceive, that chemistry and mechanics mark the character of the mineral kingdom; that, by a higher power, the vegetable kingdom assumes the attributes of the mineral, the animal of the vegetable, and the human of the animal; thus rendering all inferior orders and powers subject to the controlling principle of human life.

From the foregoing remarks it will appear, that the same elements of matter are found in each of nature's departments, but controlled by different laws; and in the human species, as the highest perfection of earth and the footstool of heaven, we find an order manifest, even in the physical organism, that betokens a relationship to the world above and the world below; and to study human physiology in this light, inspires us with a certain sense of grandeur, an inexplicable feeling of delight; and it would do violence to our sense of justice to degrade the character of man, when unperverted by evil, as he stands unveiled before us, — the veritable image of his divine Creator.

In the pursuit of our investigations, we are permitted to scan the mineral, vegetable, and animal kingdoms, and trace out their analogies in man; but the frontiers of nature's kingdoms are guarded by sacred limits, that forbid the confounding of one with another.

Some philosophers have not only degraded man to the level of animals, but to that of an animated machinery. Descartes maintained, that neither man or animals are endowed with true sensibility. He, seemingly, makes human life the result of



chemical and mechanical combinations. He has described the glandular system as a series of chemical contrivances ; he considers the heart and arteries a kind of forcing pump and water works, operating with the nicest mechanical skill ; the lungs, a kind of natural bellows ; and all the solids and fluids of the body he endows with mechanical functions : thus constituting man a self-moving machine, a kind of perpetual motion.

How difficult to derive any satisfaction from this ingenious theory, interwoven with so many insuperable difficulties. It is true that the organism, in a certain sense, may be denominated a machine ; yet its origin and growth to maturity present at once an array of argument in favor of a vital and controlling principle, that produces beautiful results, that the highest perfection of chemistry and mechanics cannot accomplish.

The theory of Descartes may serve to amuse the modern schoolmen ; and happy would the circumstance prove, if his sensualism were among the things that have passed into oblivion. But it is to be feared that the same doctrines are put forth in a new garb, clothed in technicalities of tenfold ambiguity. We hear and read much about life, it is true ; and we are led to believe, that tolerably correct notions in theory are entertained of the vital economy ; — that it may undergo changes from health to disease, from lethal influences so subtle in their nature as to admit of no kind of measurement — influences wafted upon the arctic breeze, the midnight dews, the winds from the mountain top, and the ocean wave. It is singular, indeed, if man has a sphere of susceptibility about his person, that may render him the victim of *infinitesimal miasmata* ; yet it is a true doctrine, and generally admitted. The prevalence of all manner of sicknesses, both epidemic and endemic, and also contagious, are accounted for on the ground of man's sensitive vitality, which is susceptible of being elevated or depressed, and of having its equilibrium destroyed by *materies morbi*, so extremely attenuated as to forbid any kind of success in attempting to render them otherwise appreciable, than by their effects upon the living organism. Those that teach this doctrine seem to lose sight of man's sensitive vitality, when called upon to administer for his relief. Disease has transformed him into Descartes's animated machine, or laboratory ; and now the dram, the half ounce, and the ounce of chemicals are carefully meted out, and poured down his throat, to work wondrous chemical changes in favor of health and



prolonged life. It is very absurd, they say, to suppose that an attenuated dose can affect a sick person favorably; notwithstanding they admit, that an attenuated miasm has made him sick — such is the consistency of modern theory and practice. But if *we* view the matter in a true light, we shall not overlook the physiological fact, that a vital principle exercises supreme control both in health and in disease, susceptible of being affected at all times, either favorably or unfavorably, by dynamic agencies. The multiplied effects of the small dose, when subjected to the control of vital influences, is as possible and as probable as the miraculous multiplication of the substances of the loaves and fishes, with which our Saviour fed so immense a multitude. Man is but the medium of administering to his fellow-man; and but little would it avail, were it not for the actual presence of Him who really feeds the hungry and heals the sick.

It is absurd to predicate the extent of medicinal action upon the size of the dose; for the invisible vasculæ of the smaller vessels may imbibe that which cannot be appreciated by the senses, and, by a vital process, the whole system may be subjected to its influence. Our limits forbid a further discussion of this matter at this time, although as a physiological fact it is susceptible of the plainest demonstration.

To acquire a profound knowledge of the laws of human life, we must commence our observations with its embryonic origin, and trace man through the golden morn of his existence in the world; “when all the organs and faculties are first formed and moulded according to the purest order of heaven.”

A German author remarks: “That human life, antecedent to birth, is apparently the reverse of that which is consequent; the lungs, in this state, enjoy a certain sweet and tranquil slumber, and the brain is the chief source of bodily animation. Yet this state, seemingly so imperfect, is near to a divine perfection; because it is the essential type of creation, effected *a priori ad posterius*, — the external parts being moulded from an internal vital energy. In this state, no outward causes are allowed to exercise a disturbing influence. The symbols of the divine ideas on the work itself, are here impressed in their natural order and arrangement. Here the oracles of nature are written on his being.”

It was reported anciently, that the responses of the Sibyl, a prophetic woman of ancient Italy, were dotted on the



leaves of trees, carefully arranged within her grotto ; but no sooner was a blast of air admitted, on the intrusion of the curious, than the whole was dispersed and thrown into confusion. Very similar is it on the birth of man. The unsullied order of God is now to suffer discomposure. The lungs no longer slumber ; they, and their organs of expression, now become the external tablets of the soul. The eyes and ears, first cast in the womb, now receive the influence of the light and the vibrations of the atmosphere ; all impressions are now received from the world without. The lungs, from being passive, now become signally active ; and speech and tones and looks now appear, as the manifestations of the actions of the brain, which till now held the most conspicuous place in the system, and exercised undivided sway. But still the lungs themselves are but the external agents of the brain, holding, as it were, a kind of mediatorial office between the inward world of man and the outward world of nature. The atmosphere, on the one hand, excites and impels them, as if it were gaining the supremacy ; but the brain, on the other hand, vindicates its title to original dominion, and by reaction on the mechanism of breathing expels all foreign and adventitious influences ; and shows demonstrably that the lungs, with all their appurtenances, are but its instruments."

From the preceding considerations we perceive that man, after birth, appears to derive all his impressions from external nature, without the power of moulding them according to the forms of his original being. But this is only an appearance. The induction of knowledge through the senses, *a posteriori ad prius*, is his indispensable work, according to his present existing constitution ; but, in every instance of its exercise, it supposes the simultaneous exertion of a higher power, whose mode of action is from within, in an outward direction. By making this distinction between what is apparently true and what is really so, we are able to reconcile the apparent discord in the beautiful harmony of the human system, and look upon it as the illustrious triumph of divine art.

The first stage of man's physiological history discloses the very origin of the essential attributes of humanity, — a multiplicity of living receptive faculties struck on his being in the womb, waiting for the changes they undergo at birth. All is darkness at first, but when they begin to open to the surrounding world, there is a meeting of congenial spheres ; light,



with its variety of hues, and the visual properties of external things, the odors of the earth, harmonious and discordant sounds, and the qualities of taste and touch, rush in and make their impression upon the soul, and awaken there the elements of mind and moral feeling; and all things in the outward universe become to him the great alphabet of knowledge.

The sublime and the beautiful are everywhere present in the laws of human life, — from its rudimental beginning, through all its stages of advancement towards maturity. The laws that govern and protect the human organism are as fixed as those that govern the planetary system. Perfect obedience to these laws assures uninterrupted health and long life, graced with the pleasures of earthly enjoyments and unobscured prospects of a better world. How important, then, to inquire into the nature of these laws, and the degradation, disease, and wretchedness that awaits a violation of them. Were man to obey strictly the laws of his constitutional nature, he would advance to maturity and gradually decline into old age, and ultimately fall asleep without disease and without pain. It is violation of law that brings pain, disease, and death.